The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MINGMING FANG, SHUMIN WANG and HOMER CHOU

Appeal No. 2005-1357
Application 09/595,227

BRIEF

Before CAROFF, TIMM, and DELMENDO, Administrative Patent Judges.

CAROFF, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-23, all the pending claims in appellants' application. This case, as appeal no. 2004-1296, was remanded to the examiner on June 9, 2004 (Paper No. 21) to consider whether data provided in the examples presented in the involved application, particularly Example 1, are indicative of unexpected

results. In response, the examiner issued a supplemental answer on July 15, 2004, and appellants filed a supplemental reply brief on September 20, 2004.

The claims on appeal are directed to a method for planarizing or polishing a surface of a memory disk using an aqueous polishing composition including abrasive particles and an oxidizing agent, as well as phosphate or phosphonate ions at a concentration of about 0.04 M or higher.

Claim 1, the sole independent claim, is illustrative of appellants' method:

> 1. A method for planarizing or polishing a surface of a memory disk comprising abrading at least a portion of the surface with a polishing system comprising (i) a polishing composition comprising water, an oxidizing agent, and about 0.04 M or higher phosphate ion or phosphonate ion, and (ii) abrasive material.

The prior art references relied upon by the examiner are:

James et al. (James)	6,069,080	May 30, 2000
Ishitobi et al. (Ishitobi)	6,152,976	Nov. 28, 2000
	[effective filing date: Aug. 27, 1997]	
Huynh et al. (Huynh)	6,190,237	Feb. 20, 2001
	[effective filing date: Nov. 6, 1997]	

Claims 1-14 and 17-23 stand rejected under 35 U.S.C. § 103 for obviousness in view of Huynh taken with James, or in view of James taken with Huynh. Claims 15-16 stand rejected on the same basis with additional reliance upon Ishitobi.

We have carefully considered the issues in this case in light of the evidentiary record and the positions advanced by the appellants and the examiner. Having done so, we conclude that the examiner has established a prima facie case of obviousness which, however, is outweighed by the evidence of unexpected results adduced by the appellants. Accordingly, we shall reverse all of the rejections at issue.

Appellants' arguments to the contrary notwithstanding, we agree with the examiner that the Huynh disclosure provides the requisite motivation under 35 U.S.C. § 103 to add a pH buffering component to a polishing composition used for polishing or planarizing surfaces of integrated circuits or other microelectronic devices. The motivation arises from the suggestion in Huynh to add a pH buffer in order to provide resistance to pH changes in the polishing composition. The selection of a phosphate as a pH buffer component would have been prima facie obvious within the context of 35 U.S.C. § 103 since Huynh teaches that a number of phosphates are suitable for this purpose. (Huynh: col. 1, l. 6-18; col. 2, l. 6-14; col. 2, l. 62 - col. 3, l. 1).

Moreover, we conclude that there would have been a reasonable expectation of success in applying the teachings of Huynh in polishing a surface of a memory disk in view of the desire

expressed in James for using a fluid or slurry which provides a substantially consistent pH when polishing memory disks (col. 2, l. 62 - col. 3, l. 4). James also manifests a preference for including a pH buffer in the polishing composition apparently for this very purpose (col. 4, l. 40-44). Again, Huynh discloses that phosphates may be used as pH buffer components in similar compositions.

We find it unnecessary to discuss the teachings of Ishitobi in detail since they are essentially cumulative of the disclosure of chemical etching agents in Huynh (col. 3, l. 54-64), which correspond to oxidizing agents recited in appellants' claims, and the oxidizers in James (col. 4, l. 44).

We now turn to the issue of whether the data presented in appellants' specification, and particularly in Example 1, are indicative of unexpected results.

The examiner's remarks are limited to noting the observation in Huynh (col. 4, l. 5-17) that adding a few drops of a primary slurry to a second slurry can significantly change the pH of the second slurry and reduce polishing rate; whereas employing the disclosed buffering technique avoids a change in pH and, presumably, avoids a reduction in polishing rate.

However, the examiner's remarks have little bearing on the significance of the data relied upon by the appellants here. As noted by appellants, Huynh merely teaches that addition of a pH buffer will maintain the pH and the polishing rate at a substantially constant level even when a slurry is subject to cross-contamination by a primary slurry.

On the other hand, appellants' Example 1 clearly demonstrates that the inclusion of phosphate or phosphonate ions at the indicated molarity in a polishing composition results in a significant increase in the polishing rate. In this regard, we give considerable weight to the difference in relative polishing rate between comparative composition 2 (rate: 1.4) and compositions 1A-1F (rates: 1.7 - 2.3). We agree with appellants that such an increase in polishing rate is indicative of unexpected results, especially in view of the disclosure of Huynh (col. 4, l. 18-20) suggesting that inclusion of a buffering material will not change the polishing rate to any noticeable degree.

Accordingly, we are of the opinion that the evidence of prima facie obviousness relied upon by the examiner is outweighed by the evidence of nonobviousness upon which appellants rely.

For the foregoing reason, the decision of the examiner is reversed.

REVERSED

MARC L. CAROFF)
Administrative Patent Judge)
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CATHERINE TIMM) BOARD OF PATENT
Administrative Patent Judge) APPEALS AND
) INTERFERENCES
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ROMULO H. DELMENDO)
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